

Patent Appl. No. 10/647,919  
Docket No. 15634 (PC25246A)  
Filing Date: August 26, 2003

### **AMENDMENTS TO THE CLAIMS**

This listing of claims replaces all prior versions, and listings, of claims in the application:

#### **Listing of Claims:**

1. (Currently amended) An immunogenic composition comprising:  
a modified live Bovine Herpes Virus (BHV-1);  
a modified live parainfluenza virus Type 3 (PI3);  
a modified Bovine Respiratory Syncytial Virus (BRSV);  
an adjuvant;  
~~at least one antigen~~ Bovine Viral Diarrhea Virus Type-1 (BVDV-1);  
a Bovine Viral Diarrhea Virus Type-2 (BVDV-2); and  
a veterinary-acceptable carrier.
2. (Currently amended) The immunogenic composition of Claim 1, wherein said ~~antigen is-BVDV-1 and BVDV-2 are inactivated~~.
3. (Original) The immunogenic composition of Claim 1, wherein said adjuvant comprises a saponin.
4. (Currently amended) The immunogenic composition of Claim ~~[1-3]~~ 1, wherein said adjuvant comprises ~~saponin-containing~~ a saponin-containing oil-in-water emulsion.
5. (Currently amended) The immunogenic composition of Claim 4, wherein said adjuvant comprises Quil A, Amphigen-lecithin and oil blend, and cholesterol.
6. (Currently amended) The immunogenic composition of Claim 5, wherein said ~~Quil A, Amphigen and cholesterol oil-in-water emulsion-adjuvant~~ is microfluidized.
7. (Currently amended) The immunogenic composition of Claim 1, ~~wherein said antigen comprises further comprising~~ at least one antigen selected from the group consisting of Bovine Viral Diarrhea Virus (BVDV-1), Bovine Viral Diarrhea Virus (BVDV-2), Leptospira canicola, Leptospira grippotyphosa, Leptospira borgpetersenii-hardjo-prajitno hardjo-prajitno, Leptospira icterohaemorrhagia, Leptospira interrogans pomona, Leptospira borgpetersenii hardjo-bovis, and Campylobacter fetus.
8. (Currently amended) The immunogenic composition of Claim 7~~1~~, wherein said Bovine Viral Diarrhea Virus Type 1 (BVDV-1) is cytopathic.

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9. (Currently amended) The immunogenic composition of Claim 71, wherein said Bovine Viral Diarrhea Virus Type 1(BVDV-1) is noncytopathic.
10. (Currently amended) The immunogenic composition of Claim 71, wherein said Bovine Viral Diarrhea Virus Type 2(BVDV-2) is cytopathic.
11. (Currently amended) The immunogenic composition of Claim 71, wherein said Bovine Viral Diarrhea Virus Type 2(BVDV-2) is noncytopathic.
12. (Withdrawn) A method of inducing an immune response against Bovine Herpes Virus Type 1 in an animal subject, comprising administering an immunologically effective amount of the composition of Claim 1 and a ~~veterinarily acceptable-veterinary-acceptable~~ carrier.
13. (Withdrawn) A method of inducing an immune response against Bovine Viral Diarrhea Virus Type-1 in an animal subject, comprising administering an immunologically effective amount of the composition of Claim 1 and a veterinary-acceptable carrier.
14. (Withdrawn) A method of inducing an immune response against Bovine Viral Diarrhea Virus Type-2 in an animal subject, comprising administering an immunologically effective amount of the composition of Claim 1 and a veterinary-acceptable carrier.
15. (Withdrawn) A method of inducing an immune response against parainfluenza virus Type 3 (PI3) in an animal subject, comprising administering an immunologically effective amount of the composition of Claim 1 and a veterinary-acceptable carrier.
16. (Withdrawn) A method of inducing an immune response against Bovine Respiratory Syncytial Virus (BRSV) in an animal subject, comprising administering an immunologically effective amount of the composition of Claim 1 and a veterinary-acceptable carrier.
17. (Withdrawn) A method of inducing an immune response against *Campylobacter fetus* in an animal subject, comprising administering an immunologically effective amount of the composition of Claim 1 and a veterinary-acceptable carrier.
18. (Withdrawn) A method of inducing an immune response against an antigen selected from the group consisting of *Leptospira canicola*, *Leptospira grippotyphosa*, *Leptospira borgpetersenii-hardjo-prajni*~~o hardjo-prajni~~, *Leptospira icterohaemorrhagiae*, *Leptospira interrogans pomona*, *Leptospira borgpetersenii hardjo-bovis*, *Leptospira bratislava*, *Neospora caninum*, *Trichomonas fetus*, *Mycoplasma bovis*, *Mycoplasma bovis*, *Haemophilus somnus*, *Mannheimia haemolytica* and *Pasturella multocida* in an animal subject, comprising

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administering an immunologically effective amount of the composition of Claim 1 and a veterinary-acceptable carrier.

19. (Withdrawn) The method of any one of claims 12-18, wherein said immune response is a cellular or humoral immune response.

20. (Currently amended) A vaccine composition comprising:

a modified live Bovine Herpes Virus (BHV-1);

a modified live parainfluenza virus Type 3 (PI3);

a modified live Bovine Respiratory Syncytial Virus (BRSV);

an adjuvant;

at least one antigen a Bovine Viral Diarrhea Virus Type-1 (BVDV-1);

a Bovine Viral Diarrhea Virus Type-2 (BVDV-2); and

a ~~veterinarily acceptable~~-veterinary-acceptable carrier.

21. (Currently amended) The vaccine composition of Claim 20, wherein said antigen is BVDV-1 and BVDV-2 are inactivated.

22. (Original) The vaccine composition of Claim 20, wherein said adjuvant comprises a saponin.

23. (Currently amended) The vaccine composition of Claim 20, wherein said adjuvant comprises saponin-containing a saponin-containing oil-in-water emulsion.

24. (Currently amended) The vaccine composition of Claim 23, wherein said saponin containing-saponin-containing oil-in-water emulsion is microfluidized microfluidized.

25. (Currently amended) The vaccine composition of Claim 20, wherein said adjuvant comprises Quil A, Amphigen-lecithin and oil blend, and cholesterol.

26. (Currently amended) The vaccine composition of Claim 25, wherein said Quil A, Amphigen and cholesterol, oil in water emulsion is microfluidized adjuvant is microfluidized.

27. (Currently amended) The vaccine composition of Claim 20, wherein said antigen comprises further comprising at least one antigen selected from the group consisting of Bovine Viral Diarrhea Virus (BVDV-1), Bovine Viral Diarrhea Virus (BVDV-2), Leptospira canicola, Leptospira grippotyphosa, Leptospira borgpetersenii hardjo-prajitno hardjo-prajitno, Leptospira icterohaemorrhagia, Leptospira interrogans pomona, Leptospira borgpetersenii hardjo-bovis and Campylobacter fetus.

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28. (Currently amended) The vaccine composition of Claim 2720, wherein said Bovine Viral Diarrhea Virus Type-1 (BVDV-1) is cytopathic.
29. (Currently amended) The vaccine composition of Claim 2720, wherein said Bovine Viral Diarrhea Virus Type-1 (BVDV-1) is noncytopathic.
30. (Currently amended) The vaccine composition of Claim 2720, wherein said Bovine Viral Diarrhea Virus Type-2 (BVDV-2) is cytopathic.
31. (Currently amended) The vaccine composition of Claim 2720, wherein said Bovine Viral Diarrhea Virus Type-2 (BVDV-2) is noncytopathic.
32. (Withdrawn) A method of preventing abortion caused by a virus selected from the group consisting of BHV-1 in an animal comprising administering to said animal a therapeutically effective amount of the vaccine composition of Claim 20.
33. (Withdrawn) The method of Claim 32, wherein said animal is a cow, a calf, a heifer, a steer or a bull.
34. (Withdrawn) The method of Claim 33, wherein said animal is a lactating cow.
35. (Withdrawn) The method of Claim 33, wherein said animal is a pregnant cow.
36. (Withdrawn) The method of Claim 33, wherein said animal is a prebreeding cow or heifer.
37. (Withdrawn) The method of Claim 32, wherein said vaccine is administered intramuscularly.
38. (Withdrawn) The method of Claim 32, wherein said vaccine is administered subcutaneously.
39. (Withdrawn) The method of Claim 32, wherein said vaccine contains from about  $10^3$  to about  $10^{10}$  colony forming units per dose of each virus.
40. (Withdrawn) The method of Claim 32, wherein the amount of said vaccine administered is from about 0.5 to about 5.0ml per dose.
41. (Withdrawn) The method of Claim 32, wherein the amount of said vaccine administered is about 5ml per dose.
42. (Withdrawn) The method of Claim 32, wherein the amount of said vaccine administered is about 2ml per dose.

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43. (Withdrawn) A method of treating or preventing a disease or disorder in an animal caused by infection with a virus selected from the group consisting of BVDV Type 1 or Type 2, BHV-1, PI3 or BRSV comprising administering to said animal a therapeutically effective amount of the vaccine composition of Claim 20.
44. (Withdrawn) The method of Claim 43, wherein said animal is a cow, a calf, a heifer, a steer or a bull.
45. (Withdrawn) The method of Claim 44, wherein said animal is a lactating cow.
46. (Withdrawn) The method of Claim 44, wherein said animal is a prebreeding cow or heifer.
47. (Withdrawn) The method of Claim 44, wherein said animal is a pregnant cow.
48. (Withdrawn) The method of Claim 43, wherein said vaccine is administered intramuscularly.
49. (Withdrawn) The method of Claim 43, wherein said vaccine is administered subcutaneously.
50. (Withdrawn) The method of Claim 43, wherein said vaccine contains from about  $10^3$  to about  $10^{10}$  colony forming units per dose.
51. (Withdrawn) The method of Claim 43, wherein the amount of said vaccine administered is from about 0.5 to about 5.0ml per dose.
52. (Withdrawn) The method of Claim 51, wherein the amount of said vaccine administered is about 5ml per dose.
53. (Withdrawn) The method of Claim 51, wherein the amount of said vaccine administered is about 2ml per dose.
54. (Withdrawn) A method of treating or preventing a disease or disorder in an animal caused by infection with an antigen selected from the group consisting of Leptospira canicola, Leptospira grippotyphosa, Leptospira borgpetersenii-hardjo-prajitno hardjo-prajitno, Leptospira icterohaemorrhagia, Leptospira interrogans pomona, Leptospira borgpetersenii hardjo-bovis, Leptospira Bratislava bratislava, Campylobacter fetus, Neospora caninum, Trichomonas fetus, Mycoplasma bovis, Mycoplasma bovis, Haemophilus somnis, Mannheimia haemolytica and Pasteurella multocida, comprising administering to said animal a therapeutically effective amount of the vaccine composition of Claim 20.

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55. (Withdrawn) The method of Claim 54, wherein said animal is a cow, a calf, a heifer, a steer or a bull.
56. (Withdrawn) The method of Claim 55, wherein said animal is a lactating cow.
57. (Withdrawn) The method of Claim 55, wherein said animal is a pregnant cow.
58. (Withdrawn) The method of Claim 55, wherein said animal is a prebreeding cow or heifer.
59. (Withdrawn) The method of Claim 54, wherein said vaccine is administered intramuscularly.
60. (Withdrawn) The method of Claim 54, wherein said vaccine is administered subcutaneously.
61. (Withdrawn) The method of Claim 54, wherein said vaccine contains from about  $10^3$  to about  $10^{10}$  colony forming units per dose of each virus.
62. (Withdrawn) The method of Claim 54, wherein the amount of said vaccine administered is from about 0.5 to about 5.0ml per dose.
63. (Withdrawn) The method of Claim 62, wherein the amount of said vaccine administered is about 5ml per dose.
64. (Withdrawn) The method of Claim 62, wherein the amount of said vaccine administered is about 2ml per dose.
65. (Withdrawn) A method of preventing persistent fetal infection in an animal subject, comprising administering to said animal an effective amount of the vaccine composition of Claim 20.
66. (Withdrawn) The method of Claim 65, wherein said animal is a cow, a calf, a heifer, a steer or a bull.
67. (Withdrawn) The method of Claim 66, wherein said animal is a lactating cow.
68. (Withdrawn) The method of Claim 66, wherein said animal is a pregnant cow.
69. (Withdrawn) The method of Claim 66, wherein said animal is a prebreeding cow or heifer.
70. (Withdrawn) The method of Claim 66, wherein said vaccine is administered intramuscularly.

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71. (Withdrawn) The method of Claim-~~6665~~, wherein said vaccine is administered subcutaneously.
72. (Withdrawn) The method of Claim-~~6665~~, wherein said vaccine contains from about  $10^3$  to about  $10^{10}$  colony forming units per dose of each virus.
73. (Withdrawn) The method of Claim 65, wherein the amount of said vaccine administered is from about 0.5 to about 5.0ml per dose.
74. (Withdrawn) The method of Claim 73, wherein the amount of said vaccine administered is about 5ml per dose.
75. (Withdrawn) The method of Claim 73, wherein the amount of said vaccine administered is about 2ml per dose.
76. (Currently amended) A vaccine composition comprising:
  - a modified live Bovine Herpes Virus (BHV-1);
  - a modified live parainfluenza virus Type 3 (PI3);
  - a modified live Bovine Respiratory Syncytial Virus (BRSV);
  - a ~~BVD-2~~ Bovine Viral Diarrhea Virus Type 2 (BVDV-2);
  - a ~~BVD-1~~ Bovine Viral Diarrhea Virus Type 1 (BVDV-1);
  - an adjuvant;
  - at least one antigen selected from the group consisting of *Leptospira canicola*, *Leptospira grippotyphosa*, *Leptospira borgpetersenii-hardjo-prajitno hardjo-prajitno*, *Leptospira icterohaemorrhagia*, and *Leptospira interrogans pomona*, *Leptospira borgpetersenii hardjo-bovis*, *Leptospira Bratislava bratislava*, and *Campylobacter fetus*; and a veterinary-acceptable carrier.
77. (Currently amended) The vaccine composition of Claim 76, wherein said adjuvant comprises ~~saponin-containing-a saponin-containing~~ oil-in-water emulsion.
78. (Currently amended) The vaccine composition of Claim-~~7677~~, wherein said ~~saponin-containing-saponin-containing~~ oil-in-water emulsion is microfluidized.
79. (Currently amended) The vaccine composition of Claim 76, wherein said adjuvant comprises Quil A, Amphigen-lecithin and oil blend, and cholesterol.
80. (Currently amended) The vaccine composition of Claim 76, wherein said cytopathic ~~BVD-2~~ Bovine Viral Diarrhea Virus Type 2 (BVDV-2) is inactivated.

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81. (Currently amended) The vaccine composition of Claim 76, wherein said ~~BVD-1~~  
Bovine Viral Diarrhea Virus Type 1 (BVDV-1) is cytopathic.
82. (Currently amended) The vaccine composition of Claim 76, wherein said ~~cytopathic~~  
~~BVD-1~~Bovine Viral Diarrhea Virus Type 1 (BVDV-1) is inactivated.
83. (Current amended) The immunogenic composition of Claim 4, wherein said ~~saponin~~  
~~containing saponin-containing~~ oil-in-water emulsion is microfluidized.